SEQUENCE LISTING

- (1) GENERAL INFORMATION:
 - (i) APPLICANT: Huse, William D. Glaser, Scott M.
 - (ii) TITLE OF INVENTION: Anti-Alpha V Beta 3 Recombinant Human Antibodies, Nucleic Acids Encoding Same and Methods of Use
 - (iii) NUMBER OF SEQUENCES: 100
 - (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: Campbell & Flores LLP
 - (B) STREET: 4370 La Jolla Village Drive, Suite 700
 - (C) CITY: San Diego
 - (D) STATE: California
 - (E) COUNTRY: United States
 - (F) ZIP: 92122
 - (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: Floppy disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: PatentIn Release #1.0, Version #1.25
 - (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER: US 09/016,061
 - (B) FILING DATE: 30-JAN-1998
 - (C) CLASSIFICATION:
 - (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: US 08/791,391
 (B) FILING DATE: 30-JAN-1997
 - (viii) ATTORNEY/AGENT INFORMATION:

 - (A) NAME: Campbell, Cathryn A.(B) REGISTRATION NUMBER: 31,815
 - (C) REFERENCE/DOCKET NUMBER: P-IX 2965
 - (ix) TELECOMMUNICATION INFORMATION:
 - (A) TELEPHONE: (619) 535-9001 (B) TELEFAX: (619) 535-8949
- (2) INFORMATION FOR SEQ ID NO:1:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 351 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 (D) TOPOLOGY: linear
 - (ix) FEATURE:

 - (A) NAME/KEY: CDS
 (B) LOCATION: 1..351
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

CAG GTG CAG CTG GTG GAG TCT GGG GGA GGC GTT GTG CAG CCT GGA AGG Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg 1 5 10

		AGA Arg												96
		TCT Ser 35											•	144
		GTT Val												192
		CGA Arg												240
		ATG Met												288
		CAT His												336
		GTT Val 115	-											351
(2)	INFO	RMAT	пои	FOR	SEQ	ID N	0:2:							
	(i) S	(A)	LEN	GTH:	ACTE 117 mino	ami	no a	cids					

- (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg

1 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr 20 25 30

Asp Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val 35 40 45

Ala Lys Val Ser Ser Gly Gly Gly Ser Thr Tyr Tyr Leu Asp Thr Val
50 60

Gln Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr 65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys 85 90 95

Ala Arg His Asn Tyr Gly Ser Phe Ala Tyr Trp Gly Gln Gly Thr Thr

Val Thr Val Ser Ser 115

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 321 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..321
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

GAG Glu 1	ATT Ile	GTG Val	CTA Leu	ACT Thr 5	CAG Gln	TCT Ser	CCA Pro	GCC Ala	ACC Thr 10	Leu	TCT Ser	CTC Leu	AGC Ser	CCA Pro 15	GGA Gly	48	
GAA Glu	AGG Arg	GCG Ala	ACT Thr 20	CTT Leu	TCC Ser	TGC Cys	CAG Gln	GCC Ala 25	AGC Ser	CAA Gln	AGT Ser	ATT Ile	AGC Ser 30	AAC Asn	CAC His	96	
CTA Leu	CAC His	TGG Trp 35	TAT Tyr	CAA Gln	CAA Gln	AGG Arg	CCT Pro 40	GGT Gly	CAA Gln	GCC Ala	CCA Pro	AGG Arg 45	CTT Leu	CTC Leu	ATC Ile	144	
AAG Lys	TAT Tyr 50	CGT Arg	TCC Ser	CAG Gln	TCC Ser	ATC Ile 55	TCT Ser	GGG Gly	ATC Ile	CCC Pro	GCC Ala 60	AGG Arg	TTC Phe	AGT Ser	GGC Gly	192	
AGT Ser 65	GGA Gly	TCA Ser	GGG Gly	ACA Thr	GAT Asp 70	TTC Phe	ACC Thr	CTC Leu	ACT Thr	ATC Ile 75	TCC Ser	AGT Ser	CTG Leu	GAG Glu	CCT Pro 80	240	
GAA Glu	GAT Asp	TTT Phe	GCA Ala	GTC Val 85	TAT Tyr	TAC Tyr	TGT Cys	CAA Gln	CAG Gln 90	AGT Ser	GGC Gly	AGC Ser	TGG Trp	CCT Pro 95	CAC His	288	
ACG	TTC	GGA	GGG	GGG	ACC	AAG	GTG	GAA	ATT	AAG						321	

(2) INFORMATION FOR SEQ ID NO:4:

100

(i) SEQUENCE CHARACTERISTICS:

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys

- (A) LENGTH: 107 amino acids (B) TYPE: amino acid
- (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly 10

Glu Arg Ala Thr Leu Ser Cys Gln Ala Ser Gln Ser Ile Ser Asn His

Leu His Trp Tyr Gln Gln Arg Pro Gly Gln Ala Pro Arg Leu Leu Ile

Lys Tyr Arg Ser Gln Ser Ile Ser Gly Ile Pro Ala Arg Phe Ser Gly

104 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro 65 Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Ser Gly Ser Trp Pro His 90 Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys 100 (2) INFORMATION FOR SEQ ID NO:5: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 351 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1..351 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5: GAA GTG CAG CTG GTG GAG TCT GGG GGA GGC TTA GTG AAG CCT GGA AGG Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Arg 10 TCC CTG AGA CTC TCC TGT GCA GCC TCT GGA TTC GCT TTC AGT AGC TAT

48

			TCC Ser							96
			GTT Val							144
	-		AGT Ser							192
			ACC Thr							240
			AGT Ser 85							288
-			TAC Tyr							336
		GTC Val 115	_	-	•					351

(2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 117 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein

		(xi)	SEQ	JENC	E DE	SCRII	PTIO	N: SI	EQ II	ОИ	:6:					
	u Vai	l Gli	n Let	ı Va	l Gli	ı Sei	Gly	y Gly	y Gly 10		ı Va	l Ly	s Pr	o Gl	y Arg	
Se	r Le	u Arg	Leu 20		c Cys	s Ala	a Ala	a Sei 25		Phe	e Ala	a Ph	e Se	_	r Tyr	
Ası) Met	t Sei 35	Trp	Val	l Arg	g Glr	1 Ile 40		o Glu	Lys	a Arg	Lei 4		ı Tr <u>ı</u>	o Val	
Ala	Lys 50		. Ser	Sez	Gly	/ Gly 55		/ Ser	Thr	Туг	Ty:		u Asj	Thi	val val	
Glr 65		/ Arg	y Phe	Thr	: Ile		Arg	ı Asp) Asn	Ala 75		s Ası	n Thi	. Lev	ı Tyr 80	
Leu	ı Glr	n Met	Ser	Ser 85		. Asn	Ser	Glu	Asp 90		Ala	ı Met	: Туз	Tyr 95	Cys	
Ala	Arg	, His	Asn		Gly	Ser	Phe	Ala 105		Trp	Gly	Glr Glr	1 Gly		Leu	
Val	. Thr	Val		Ala						•						
(2)	INF	'ORMA		FOR	SEO	ID	NO : 7	•								
	(ix		A) N	AME/		CDS	321									
	(xi) SE	QUEN	CE D	ESCR:	IPTIC	ON: S	SEQ :	ID NO):7:						
GAT Asp 1	ATT Ile	GTG Val	CTA Leu	ACT Thr 5	CAG Gln	TCT Ser	CCA Pro	GCC Ala	ACC Thr 10	CTG Leu	TCT Ser	GTG Val	ACA Thr	CCA Pro 15	GGA Gly	
									AGC Ser							
CTA Leu	CAC His	TGG Trp 35	TAT Tyr	CAA Gln	CAA Gln	AAA Lys	TCA Ser 40	CAT His	GAG Glu	TCT Ser	CCA Pro	AGG Arg 45	CTT Leu	CTC Leu	ATC Ile	:
AAG Lys	TAT Tyr 50	CGT Arg	TCC Ser	CAG Gln	TCC Ser	ATC Ile 55	TCT Ser	GGG Gly	ATC Ile	CCC Pro	TCC Ser 60	AGG Arg	TTC Phe	AGT Ser	GGC Gly	:
AGT Ser 65	GGA Gly	TCA Ser	GGG Gly	ACA Thr	GAT Asp 70	TTC Phe	GCT Ala	CTC Leu	AGT Ser	ATC Ile 75	AAC Asn	AGT Ser	GTG Val	GAG Glu	ACT Thr 80	:
GAA Glu	GAT Asp	TTT Phe	GGA Gly	ATG Met 85	TAT Tyr	TTC Phe	TGT Cys	CAA Gln	CAG Gln 90	AGT Ser	GGC Gly	AGC Ser	TGG Trp	CCT Pro 95	CAC His	2

ACG TTC GGA GGG GGG ACC AAG CTG GAA ATT AAG

Thr	Phe	Gly	Gly 100	Gly	Thr	Lys	Leu	Glu 105	Ile	Lys

- (2) INFORMATION FOR SEQ ID NO:8:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 107 amino acids (B) TYPE: amino acid

 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Asp Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly

Asp Ser Val Ser Leu Ser Cys Gln Ala Ser Gln Ser Ile Ser Asn His

Leu His Trp Tyr Gln Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile

Lys Tyr Arg Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly

Ser Gly Ser Gly Thr Asp Phe Ala Leu Ser Ile Asn Ser Val Glu Thr

Glu Asp Phe Gly Met Tyr Phe Cys Gln Gln Ser Gly Ser Trp Pro His

Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys

- (2) INFORMATION FOR SEQ ID NO:9:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 84 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

CAGGTGCAGC TGGTGGAGTC TGGGGGAGGC GTTGTGCAGC CTGGAAGGTC CCTGAGACTC TCCTGTGCAG CCTCTGGATT CACC

- (2) INFORMATION FOR SEQ ID NO:10:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 84 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

AACTTTTGCG ACCCACTCCA GACCCTTGCC CGGAGCCTGG CGAACCCAAG ACATGTCATA 60 GCTACTGAAG GTGAATCCAG AGGC

84

60

107	
(2) INFORMATION FOR SEQ ID NO:11:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 87 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEOUENCE DESCRIPTION: SEQ ID NO:11:	
TGGGTCGCAA AAGTTAGTAG TGGTGGTGGT AGCACCTACT ATTTAGACAC TGTGCAGGGC	60
CGATTCACCA TCTCCAGAGA CAATAGT	87
(2) INFORMATION FOR SEQ ID NO:12:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 81 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:	
TGCACAGTAA TACACGGCTG TGTCCTCGGC TCTCAGAGAG TTCATTTGCA GGTATAGGGT	60
GTTCTTACTA TTGTCTCTGG A	81
(2) INFORMATION FOR SEQ ID NO:13:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 75 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:	
GTGTATTACT GTGCAAGACA TAACTACGGC AGTTTTGCTT ACTGGGGCCA AGGGACTACA	60
GTGACTGTTT CTAGT	75
(2) INFORMATION FOR SEQ ID NO:14:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 87 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:	
GAGATTGTGC TAACTCAGTC TCCAGCCACC CTGTCTCTCA GCCCAGGAGA AAGGGCGACT	60
CTTTCCTGCC AGGCCAGCCA AAGTATT	87
(2) INFORMATION FOR SEQ ID NO:15:	

(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 72 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	_
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:	
GATGAGAAGC CTTGGGGCTT GACCAGGCCT TTGTTGATAC CAGTGTAGGT GGTTGCTAAT	60
ACTTTGGCTG GC	72
(2) INFORMATION FOR SEQ ID NO:16:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 84 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:	
CCAAGGCTTC TCATCWASTA TCGTTCCCAG TCCATCTCTG GGATCCCCGC CAGGTTCAGT	60
GGCAGTGGAT CAGGGACAGA TTTC	84
(2) INFORMATION FOR SEQ ID NO:17:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 81 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:	
GCTGCCACTC TGTTGACAGW AATAGACTGC AAAATCTTCA GGCTCCAGAC TGGAGATAGT	60
GAGGGTGAAA TCTGTCCCTG A	81
(2) INFORMATION FOR SEQ ID NO:18:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 57 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:	
CAACAGAGTG GCAGCTGGCC TCACACGTTC GGAGGGGGGA CCAAGGTGGA AATTAAG	57
(2) INFORMATION FOR SEQ ID NO:19:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 36 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear 	

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:	
GCCCAACCAG CCATGGCCGA TATTGTGCTA ACTCAG	36
(2) INFORMATION FOR SEQ ID NO:20:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear 	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:	
ACAGTTGGTG CAGCATCAGC	20
(2) INFORMATION FOR SEQ ID NO:21:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 36 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: single (D) TOPOLOGY: linear 	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:	
ACCCCTGTGG CAAAAGCCGA AGTGCAGCTG GTGGAG	36
(2) INFORMATION FOR SEQ ID NO:22:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 20 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEOUENCE DESCRIPTION: SEQ ID NO:22:	
GATGGGGGTG TCGTTTTGGC	20
<u></u>	
(2) INFORMATION FOR SEQ ID NO:23: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 87 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:	
GAGATTGTGC TAACTCAGTC TCCAGCCACC CTGTCTCTCA GCCCAGGAGA AAGGGCGACT	60
CTTTCCTGCC AGGCCAGCCA AAGTATT	87
(2) INFORMATION FOR SEQ ID NO:24:	

 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 75 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:	
TTAGATGAGA AGCCTTGGGG CTTGACCAGG CCTTTGTTGA TACCAGTGTA GGTGGTTGCT	6
AATACTTTGG CTGGC	79
(2) INFORMATION FOR SEQ ID NO:25:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 84 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:	
CCAAGGCTTC TCATCTAATA TCGTTCCCAG TCCATCTCTG GGATCCCCGC CAGGTTCAGT	60
GGCAGTGGAT CAGGGACAGA TTTC	84
(2) INFORMATION FOR SEQ ID NO:26:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 81 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:	
GCTGCCACTC TGTTGACAGT AATAGACTGC AAAATCTTCA GGCTCCAGAC TGGAGATAGT	60
GAGGGTGAAA TCTGTCCCTG A	81
(2) INFORMATION FOR SEQ ID NO:27:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 57 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:	57
(2) INFORMATION FOR SEQ ID NO:28:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear	

	(xi)	SEQU	ENCE	DESC	RIPT	ION:	SEC	ID	NO : 2	8:					
	Tyr 1	Pro '	Tyr A	sp V 5		ro A	Asp T	yr A		er 0					
(2)	INFO	RMATI	ON FO	R SE	Q ID	NO:	29:								
	(i)	(B) (C)	ENCE LENG TYPE STRA TOPO	TH: : nu NDED	22 b clei NESS	ase c ac : bo	pair id th	s							
	(xi)	SEQUE	ENCE	DESC	RIPT	ION:	SEQ	ID :	NO:2	9:					
GCT	ACTGA	AG GCG	BAATC	CAG I	AG				•						22
(2)	INFO	RMATIC	N FO	R SE(Q ID	NO:	30:								
	(i)	(B)	NCE (LENG' TYPE STRAI TOPOI	TH: 2 : nuc NDEDN	23 ba cleid NESS:	ase p c ac: : sin	pair: id	5							
	(ix)	(B)	NAME, LOCAT OTHER	CION:	11. ORMA	$\overline{13}$	N: /r	ote=	: ""N icid	INN" othe	repi er th	eser nan I	ıts a ys."	ı cod	on
	(xi)	SEQUE	NCE I	ESCR	IPTI	ON:	SEQ	ID N	10:30):					
GGGA	ACGAT	A NNN	GATGA	GA A	.GC										23
(2)	INFOR	MATIO	N FOR	SEQ	ID	NO:3	31:								
	(i)	(B) (C)	NCE C LENGT TYPE: STRAN TOPOL	H: 3 nuc DEDN	21 b leic ESS:	ase aci sin	pair .d	s							
	(ix)		RE: NAME/ LOCAT												
	(xi)	SEQUEN	ICE D	ESCR:	IPTI	ON:	SEQ	ID N	0:31	:					
GAG A	ATT G	TG CT <i>I</i> al Leu	A ACT Thr 5	CAG Gln	TCT Ser	CCA Pro	GCC Ala	ACC Thr 10	CTG Leu	TCT Ser	CTC Leu	AGC Ser	CCA Pro 15	GGA Gly	48
GAA 1 Glu 1	AGG GG Arg A	CG ACT la Thr 20	Leu	TCC Ser	TGC Cys	CAG Gln	GCC Ala 25	AGC Ser	CAA Gln	AGT Ser	ATT Ile	AGC Ser 30	AAC Asn	CAC His	96
CTA (Leu H	lis T	GG TAT rp Tyr 35	CAA Gln	CAA Gln	AGG Arg	CCT Pro 40	GGT Gly	CAA Gln	GCC Ala	CCA Pro	AGG Arg 45	CTT Leu	CTC Leu	ATC Ile	144

MKK Xaa	TAT Tyr 50	CGT Arg	TCC Ser	CAG Gln	TCC Ser	ATC Ile 55	TCT Ser	GGG Gly	ATC Ile	CCC Pro	GCC Ala 60	AGG Arg	TTC Phe	AGT Ser	GGC Gly	192
AGT Ser 65	GGA Gly	TCA Ser	GGG Gly	ACA Thr	GAT Asp 70	TTC Phe	ACC Thr	CTC Leu	ACT Thr	ATC Ile 75	TCC Ser	AGT Ser	CTG Leu	GAG Glu	CCT Pro 80	240
GAA Glu	GAT Asp	TTT Phe	GCA Ala	GTC Val 85	TAT Tyr	TAC Tyr	TGT Cys	CAA Gln	CAG Gln 90	AGT Ser	GGC Gly	AGC Ser	TGG Trp	CCT Pro 95	CAC His	288
						AAG Lys										321

(2) INFORMATION FOR SEQ ID NO:32:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 107 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Glu Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Gln Ala Ser Gln Ser Ile Ser Asn His

Leu His Trp Tyr Gln Gln Arg Pro Gly Gln Ala Pro Arg Leu Leu Ile 35 40 45

Xaa Tyr Arg Ser Gln Ser Ile Ser Gly Ile Pro Ala Arg Phe Ser Gly 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Glu Pro
65 70 75 80

Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Ser Gly Ser Trp Pro His 85 90 95

Thr Phe Gly Gly Gly Thr Lys Val Glu Ile Lys

- (2) INFORMATION FOR SEQ ID NO:33:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

GGA TTC ACC TTC AGT AGC TAT GAC ATG TCT
Gly Phe Thr Phe Ser Ser Tyr Asp Met Ser
1 10

- (2) INFORMATION FOR SEQ ID NO:34: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: protein (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34: Gly Phe Thr Phe Ser Ser Tyr Asp Met Ser
- (2) INFORMATION FOR SEQ ID NO:35:
 - (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 30 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: linear
- (ix) FEATURE:
 - (A) NAME/KEY: CDS (B) LOCATION: 1..30
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

TGG GTC GCA AAA GTT AGT AGT GGT GGT Trp Val Ala Lys Val Ser Ser Gly Gly Gly 5

30

- (2) INFORMATION FOR SEQ ID NO:36:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Trp Val Ala Lys Val Ser Ser Gly Gly Gly

- (2) INFORMATION FOR SEQ ID NO:37:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid

 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37: AGC ACC TAC TAT TTA GAC ACT GTG CAG GGC 30 Ser Thr Tyr Tyr Leu Asp Thr Val Gln Gly 5 (2) INFORMATION FOR SEQ ID NO:38: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: protein (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38: Ser Thr Tyr Tyr Leu Asp Thr Val Gln Gly 5 1 (2) INFORMATION FOR SEQ ID NO:39: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both
(D) TOPOLOGY: linear (ix) FEATURE: (A) NAME/KEY: CDS
(B) LOCATION: 1..30 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39: GCA AGA CAT AAC TAC GGC AGT TTT GCT TAC 30 Ala Arg His Asn Tyr Gly Ser Phe Ala Tyr 1 (2) INFORMATION FOR SEQ ID NO:40: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: protein (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40: Ala Arg His Asn Tyr Gly Ser Phe Ala Tyr (2) INFORMATION FOR SEQ ID NO:41: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 39 base pairs (B) TYPE: nucleic acid

(ix) FEATURE:

(A) NAME/KEY: CDS

(C) STRANDEDNESS: both
(D) TOPOLOGY: linear

(B) LOCATION: 1..39

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

CAG GCC AGC CAA AGT ATT AGC AAC CAC CTA CAC TGG TAT Gln Ala Ser Gln Ser Ile Ser Asn His Leu His Trp Tyr 39

- (2) INFORMATION FOR SEQ ID NO:42:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Gln Ala Ser Gln Ser Ile Ser Asn His Leu His Trp Tyr

- (2) INFORMATION FOR SEQ ID NO:43:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 33 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..33
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

CTT CTC ATC CGT TAT CGT TCC CAG TCC ATC TCT Leu Leu Ile Arg Tyr Arg Ser Gln Ser Ile Ser 33

- (2) INFORMATION FOR SEQ ID NO:44:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 amino acids
 - (B) TYPE: amino acid(D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Leu Leu Ile Arg Tyr Arg Ser Gln Ser Ile Ser 1. 5

- (2) INFORMATION FOR SEQ ID NO:45:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs

 - (B) TYPE: nucleic acid (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear

(ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 127	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:	
CAA CAG AGT GGC AGC TGG CCT CAC ACG Gln Gln Ser Gly Ser Trp Pro His Thr 1 5	
(2) INFORMATION FOR SEQ ID NO:46:	
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 9 amino acids(B) TYPE: amino acid(D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: protein	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:	
Gln Gln Ser Gly Ser Trp Pro His Thr 1 5	
(2) INFORMATION FOR SEQ ID NO:47:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
(ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 130	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:	
GGA ACT ACC TTC AGT AGC TAT GAC ATG TCT Gly Thr Thr Phe Ser Ser Tyr Asp Met Ser 1 5 10	
(2) INFORMATION FOR SEQ ID NO:48:	
(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: protein	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:	
Gly Thr Thr Phe Ser Ser Tyr Asp Met Ser 1 5 10	
(2) INFORMATION FOR SEQ ID NO:49:	
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 30 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both	

(D) TOPOLOGY: linear (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1..30 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:49: GGA TTC ACC TGG AGT AGC TAT GAC ATG TCT 30 Gly Phe Thr Trp Ser Ser Tyr Asp Met Ser (2) INFORMATION FOR SEQ ID NO:50: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: protein (xi) SEQUENCE DESCRIPTION: SEQ ID NO:50: Gly Phe Thr Trp Ser Ser Tyr Asp Met Ser (2) INFORMATION FOR SEQ ID NO:51: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1..30 . (xi) SEQUENCE DESCRIPTION: SEQ ID NO:51: GGA TTC ACC TTC CTG AGC TAT GAC ATG TCT 30 Gly Phe Thr Phe Leu Ser Tyr Asp Met Ser

(2) INFORMATION FOR SEQ ID NO:52:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:
- Gly Phe Thr Phe Leu Ser Tyr Asp Met Ser
 1 5 10
- (2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
(ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 130	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:	
TGG GTC GCA AAA GTT AAA AGT GGT GGT GGT Trp Val Ala Lys Val Lys Ser Gly Gly 1 5 10	30
(2) INFORMATION FOR SEQ ID NO:54:	
(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 10 amino acids(B) TYPE: amino acid(D) TOPOLOGY: linear	
(ii) MOLECULE TYPE: protein	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:	
Trp Val Ala Lys Val Lys Ser Gly Gly Gly 1 5 10	
(2) INFORMATION FOR SEQ ID NO:55:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
(ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 130	
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:	
AGC ACC TAC TAT CCT GAC ACT GTG CAG GGC Ser Thr Tyr Tyr Pro Asp Thr Val Gln Gly 1 5 10	30
(2) INFORMATION FOR SEQ ID NO:56:	
 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear 	
(ii) MOLECULE TYPE: protein	

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

Ser Thr Tyr Tyr Pro Asp Thr Val Gln Gly 1 5 10

(2)	INFORMATION FOR SEQ ID NO:57:	
	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear	
	(ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 130	
	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:	
	ACC TAC TAT TTA GAC ACT GTG GAG GGC Thr Tyr Tyr Leu Asp Thr Val Glu Gly 5	3
(2)	INFORMATION FOR SEQ ID NO:58:	
	(i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 10 amino acids(B) TYPE: amino acid(D) TOPOLOGY: linear	
	(ii) MOLECULE TYPE: protein	
•	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:	
Ser 1	Thr Tyr Tyr Leu Asp Thr Val Glu Gly 5 10	
(2)	INFORMATION FOR SEQ ID NO:59:	
	 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear 	
	(ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 130	
	(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:	
	AGA CAT AAC CAT GGC AGT TTT GCT TAC Arg His Asn His Gly Ser Phe Ala Tyr 5 10	3 (
(2).	INFORMATION FOR SEQ ID NO:60:	
	(i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear	

(ii) MOLECULE TYPE: protein

120 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:60: Ala Arg His Asn His Gly Ser Phe Ala Tyr (2) INFORMATION FOR SEQ ID NO:61: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear (ix) FEATURE: (A) NAME/KEY: CDS (B) LOCATION: 1..30 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:61: GCA AGA CAT AAC TAC GGC AGT TAT GCT TAC 30 Ala Arg His Asn Tyr Gly Ser Tyr Ala Tyr (2) INFORMATION FOR SEQ ID NO:62: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: protein (xi) SEQUENCE DESCRIPTION: SEQ ID NO:62: Ala Arg His Asn Tyr Gly Ser Tyr Ala Tyr (2) INFORMATION FOR SEQ ID NO:63: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid (C) STRANDEDNESS: both (D) TOPOLOGY: linear (ix) FEATURE: (A) NAME/KEY: CDS
(B) LOCATION: 1..30 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:63: GCA AGA CAT AAC TAC GGC AGT TTT GAT TAC 30 Ala Arg His Asn Tyr Gly Ser Phe Asp Tyr (2) INFORMATION FOR SEQ ID NO:64: (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 amino acids

(B) TYPE: amino acid (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

Ala Arg His Asn Tyr Gly Ser Phe Asp Tyr
1 5 10

- (2) INFORMATION FOR SEQ ID NO:65:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

GCA AGA CAT AAC TAC GGC AGT TTT TAT TAC Ala Arg His Asn Tyr Gly Ser Phe Tyr Tyr 1 5 10 30

- (2) INFORMATION FOR SEQ ID NO:66:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

Ala Arg His Asn Tyr Gly Ser Phe Tyr Tyr

- (2) INFORMATION FOR SEQ ID NO:67:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:

GCA AGA CAT AAC TAC GGC AGT TTT GCT TCT Ala Arg His Asn Tyr Gly Ser Phe Ala Ser 1 5 10

- (2) INFORMATION FOR SEQ ID NO:68:
 - (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 10 amino acids

- (B) TYPE: amino acid
- (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

Ala Arg His Asn Tyr Gly Ser Phe Ala Ser 5

- (2) INFORMATION FOR SEQ ID NO:69:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both (D) TOPOLOGY: linear
 - (ix) FEATURE:

 - (A) NAME/KEY: CDS
 (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

GCA AGA CAT AAC TAC GGC AGT TTT GCT ACT Ala Arg His Asn Tyr Gly Ser Phe Ala Thr 5 1

30

- (2) INFORMATION FOR SEQ ID NO:70:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:

Ala Arg His Asn Tyr Gly Ser Phe Ala Thr

- (2) INFORMATION FOR SEQ ID NO:71:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

GCA AGA CAT AAC TAC GGC AGT TTT GCT GAT Ala Arg His Asn Tyr Gly Ser Phe Ala Asp

(2) INFORMATION FOR SEQ ID NO:72:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:

Ala Arg His Asn Tyr Gly Ser Phe Ala Asp 1 5 10

- (2) INFORMATION FOR SEQ ID NO:73:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:73:

GCA AGA CAT AAC TAC GGC AGT TTT GCT GAG Ala Arg His Asn Tyr Gly Ser Phe Ala Glu 1 5 10

- (2) INFORMATION FOR SEQ ID NO:74:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:74:

Ala Arg His Asn Tyr Gly Ser Phe Ala Glu
1 5 10

- (2) INFORMATION FOR SEQ ID NO:75:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:75:

GCA AGA CAT AAC TAC GGC AGT TTT GCT ATG
Ala Arg His Asn Tyr Gly Ser Phe Ala Met
1

30

- (2) INFORMATION FOR SEQ ID NO:76:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids (B) TYPE: amino acid

 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:76:

Ala Arg His Asn Tyr Gly Ser Phe Ala Met

- (2) INFORMATION FOR SEQ ID NO:77:
 - . (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:77:

GCA AGA CAT AAC TAC GGC AGT TTT GCT GGG Ala Arg His Asn Tyr Gly Ser Phe Ala Gly

30

- (2) INFORMATION FOR SEQ ID NO:78:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:78:

Ala Arg His Asn Tyr Gly Ser Phe Ala Gly 1 5

- (2) INFORMATION FOR SEQ ID NO:79:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs

 - (B) TYPE: nucleic acid (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:79:

GCA AGA CAT AAC TAC GGC AGT TTT GCT GCT Ala Arg His Asn Tyr Gly Ser Phe Ala Ala (2) INFORMATION FOR SEQ ID NO:80: (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear (ii) MOLECULE TYPE: protein (xi) SEQUENCE DESCRIPTION: SEQ ID NO:80: Ala Arg His Asn Tyr Gly Ser Phe Ala Ala 5 (2) INFORMATION FOR SEQ ID NO:81:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 39 base pairs (B) TYPE: nucleic acid

 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
- (ix) FEATURE:
 - (A) NAME/KEY: CDS (B) LOCATION: 1..39
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:81:

CAG GCC AGC CAA AGT ATT AGC AAC TTT CTA CAC TGG TAT Gln Ala Ser Gln Ser Ile Ser Asn Phe Leu His Trp Tyr 5 1 10

(2) INFORMATION FOR SEQ ID NO:82:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 13 amino acids
 - (B) TYPE: amino acid -
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:82:

Gln Ala Ser Gln Ser Ile Ser Asn Phe Leu His Trp Tyr

- (2). INFORMATION FOR SEO ID NO:83:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 33 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:

 - (A) NAME/KEY: CDS
 (B) LOCATION: 1..33

39

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83:

CTT CTC ATC CGT TAT TCT TCC CAG TCC ATC TCT Leu Leu Ile Arg Tyr Ser Ser Gln Ser Ile Ser 33

- (2) INFORMATION FOR SEQ ID NO:84:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 11 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:84:

Leu Leu Ile Arg Tyr Ser Ser Gln Ser Ile Ser 5

- (2) INFORMATION FOR SEQ ID NO:85:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..27
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:85:

CAA CAG AGT AAT AGC TGG CCT CAC ACG Gln Gln Ser Asn Ser Trp Pro His Thr 1

27

- (2) INFORMATION FOR SEQ ID NO:86:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 9 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:86:

Gln Gln Ser Asn Ser Trp Pro His Thr

- (2) INFORMATION FOR SEQ ID NO:87:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs

 - (B) TYPE: nucleic acid (C) STRANDEDNESS: double
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS

(B) LOCATION: 1..27

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:87:

CAA CAG AGT ACT AGC TGG CCT CAC ACT Gln Gln Ser Thr Ser Trp Pro His Thr

27

- (2) INFORMATION FOR SEQ ID NO:88:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 9 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEO ID NO:88:

Gln Gln Ser Thr Ser Trp Pro His Thr

- (2) INFORMATION FOR SEQ ID NO:89:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..27
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:89:

CAA CAG AGT GGC AGC TGG CCT CTG ACG Gln Gln Ser Gly Ser Trp Pro Leu Thr

27

- (2) INFORMATION FOR SEQ ID NO:90:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 9 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:90:

Gln Gln Ser Gly Ser Trp Pro Leu Thr 5

- (2) INFORMATION FOR SEQ ID NO:91:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 base pairs (B) TYPE: nucleic acid

 - (C) STRANDEDNESS: both (D) TOPOLOGY: linear

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(ix) FEATURE:
            (A) NAME/KEY: CDS
            (B) LOCATION: 1..27
     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:91:
 CAA CAG AGT GGC AGC TGG CCT CAG ACG
                                                                          27
 Gln Gln Ser Gly Ser Trp Pro Gln Thr
   1
 (2) INFORMATION FOR SEQ ID NO:92:
        (i) SEQUENCE CHARACTERISTICS:
              (A) LENGTH: 9 amino acids
              (B) TYPE: amino acid
              (D) TOPOLOGY: linear
       (ii) MOLECULE TYPE: protein
       (xi) SEQUENCE DESCRIPTION: SEQ ID NO:92:
 Gln Gln Ser Gly Ser Trp Pro Gln Thr
 (2) INFORMATION FOR SEQ ID NO:93:
      (i) SEQUENCE CHARACTERISTICS:
           (A) LENGTH: 30 base pairs
           (B) TYPE: nucleic acid
           (C) STRANDEDNESS: both
           (D) TOPOLOGY: linear
    (ix) FEATURE:
           (A) NAME/KEY: CDS
           (B) LOCATION: 1..30
    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:93:
GCA AGA CAT AAC CAT GGC AGT TTT GCT TCT
                                                                          30
Ala Arg His Asn His Gly Ser Phe Ala Ser
  1
                   5
                                      10
(2) INFORMATION FOR SEQ ID NO:94:
       (i) SEQUENCE CHARACTERISTICS:
             (A) LENGTH: 10 amino acids
              (B) TYPE: amino acid
              (D) TOPOLOGY: linear
      (ii) MOLECULE TYPE: protein
      (xi) SEQUENCE DESCRIPTION: SEQ ID NO:94:
Ala Arg His Asn His Gly Ser Phe Ala Ser
```

(2) INFORMATION FOR SEQ ID NO:95:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 30 base pairs(B) TYPE: nucleic acid(C) STRANDEDNESS: both

(D) TOPOLOGY:	linear
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	(ix)	THE PRINT	
ı	וז או	FEATURE:	

(A) NAME/KEY: CDS (B) LOCATION: 1..30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:95:

GCA AGA CAT AAC CAT GGC AGT TTT TAT TCT Ala Arg His Asn His Gly Ser Phe Tyr Ser

30

(2) INFORMATION FOR SEQ ID NO:96:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids
 - (B) TYPE: amino acid
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:96:

Ala Arg His Asn His Gly Ser Phe Tyr Ser

- (2) INFORMATION FOR SEQ ID NO:97:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
 - (ix) FEATURE:

 - (A) NAME/KEY: CDS
 (B) LOCATION: 1..30
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:97:

GCA AGA CAT AAC TAC GGC AGT TTT TAT GAG Ala Arg His Asn Tyr Gly Ser Phe Tyr Glu 30

- (2) INFORMATION FOR SEQ ID NO:98:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids (B) TYPE: amino acid

 - (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:98:

Ala Arg His Asn Tyr Gly Ser Phe Tyr Glu

(2) INFORMATION FOR SEQ ID NO:99:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 30 base pairs (B) TYPE: nucleic acid

 - (C) STRANDEDNESS: both
 - (D) TOPOLOGY: linear
- (ix) FEATURE:
 - (A) NAME/KEY: CDS
 (B) LOCATION: 1..30
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:99:

GCA AGA CAT AAC TAC GGC AGT TTT TAT TCT Ala Arg His Asn Tyr Gly Ser Phe Tyr Ser 1

- (2) INFORMATION FOR SEQ ID NO:100:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 10 amino acids (B) TYPE: amino acid (D) TOPOLOGY: linear
 - (ii) MOLECULE TYPE: protein
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:100:
- Ala Arg His Asn Tyr Gly Ser Phe Tyr Ser 5: